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Frederick Lothrop Ames.

FREDERICK LOTHROP AMES, one of the founders and owners of this journal, died suddenly last week during a journey from his home in Massachusetts to this city. Mr. Ames was one of the most liberal patrons of horticulture America has produced, and his collection of Orchids was a great source of pride to every one interested in the progress of the art in which he found his principal pleasure. This great collection, begun many years ago, has gradually grown and improved until it surpasses all other collections of these plants in America, and in numbers, variety and condition has not a superior. Mr. Ames' love of nature was real and profound, and his exact and comprehensive knowledge of the plants in which he was particularly interested has given him an international reputation among orchidologists. Through his liberality the Arnold Arboretum, to which he has always given generous support, and the Botanical Department of Harvard College, in which he was specially interested, have been able to extend their usefulness. For nearly thirty years Mr. Ames was an active member of the Massachusetts Horticultural Society; he has long been one of its Vice-Presidents, and as a member of the Finance Committee has rendered it invaluable service.

Outside the world of horticulture this death brings irreparable loss to many persons and to many important interests. Institutions of education and of organized benevolence will miss his wise counsels and open-handed liberality; many of the largest business enterprises of the continent will miss his sound judgment in counsel and his firm hand in control. Those who were closest to him and knew him best are bereft of a friend whose sympathy and loyalty never failed. Frederick Lothrop Ames was one of those rare men in whom the sense of duty to the public was not dulled by the possession of great wealth. A keen and abiding sense of duty, born of the old New England stock of which he came, was the strongest trait of his character; it was this which filled his life with labors of love and at last brought it to an untimely end. Careful of every trust imposed upon him, considerate of every man and woman and little child with whom he was brought into contact, he was a spendthrift of his own powers and wasted his health and strength where it seemed to him to be his duty to do so.

The name of Frederick Lothrop Ames has been associated with those of a number of Orchids now well known in our gardens; these, as long as the annals of botany and horticulture endure, will preserve sweet and green the memory of a strong, true and enlightened man.

Hardy Herbaceous Plants.

A CORRESPONDENT writes that for several successive summers he has planted seven or eight beds of what are known as bedding-plants (Coleus and the like) on his lawn, which, of course, he has had to renew each year, and as he has no space or convenience for raising such plants he is put to considerable annual expense. He adds, that having observed in horticultural papers and florists' catalogues that hardy herbaceous plants are recommended for bedding purposes, he therefore desires to be informed as to the proper varieties to use for this purpose, when they should be planted and how long they should be cared for.

To these inquiries it may be said in a general way that hardy perennial plants cannot fill the place of bedding-plants; that is, if one desires a ribbon-line of various colors or a set geometric parti-colored pattern, Coleus, Alternanthera and certain other bedding-plants are the best things he can use for the purpose. Of course, there are a few hardy perennial plants well adapted to this formal use, but there is nothing better than the well-known bedding-plants which can be kept by clipping to exactly the same form and show the same picture all the season through. It is true, also, that if one wants a bed of constantly blooming red flowers, for example, there is nothing better than the Scarlet Geranium. When a pattern is once developed by the growth of these plants, it can be kept unchanged and remain as constant as the figures on an oil-cloth all through the summer, until the frost destroys it. There are places in connection with the lines of walls and terraces, where such rigid patterns are not inappropriate. To many people, however, their very sameness makes them tiresome. In actual practice gaudy and striking colors are too often selected instead of quiet, neutral tints, and these are often at discord with each other and with their surroundings. The beds, when good in themselves, are not infrequently set in open lawns, where they are never seen to the best advantage, for a stretch of turf with an irregular border is not a satisfactory framework for them, while on the other hand the beds break up the turf into bits and destroy that sense of spaciousness and quiet which is the highest charm of well-proportioned lawn.

One strong point in favor of hardy plants is that there are hundreds of them to select from against dozens of tender bedding-plants, and a hardy herbaceous border has the charm of constant change and renewal. Long before the Coleus-picture has grown into its perfect form the Snowdrops and Daffodils and Irises and Violets have been making the herbaceous border a new creation every day, while Asters and Sunflowers and scores of delightful plants will prolong its beauty until late autumn, long after the frost has made the pattern-bed a desolation. Of course, it requires skill and knowledge to preserve this continuity of interest. It requires good taste to arrange the various plants so that the flowers which are in bloom at any given time shall group well in form and color. It requires study and forethought to plant for all the different seasons. It requires care and labor to remove what is unsightly when its growth is over, and have its place filled by

something that is in its prime. All this means an intimate knowledge of plants, and perhaps the highest purpose which is served by a herbaceous border is that it keeps its owner interested and daily invites him to new study, so that he not only constantly grows in the appreciation of the special beauties of different plants, but he is insensibly taught to investigate them and their habits, and the garden becomes a more absorbing attraction as it calls out more intelligent care. Whatever of recreation and of comfort can be derived from the growing of plants for their beauty, can be enjoyed to its fullest extent in a garden of herbaceous perennial plants and of hardy annuals and biennials which can be grown among them without a greenhouse or even without a cold frame.

Of course, a herbaceous border is not the only place in which hardy perennials can be used with good effect. In places of considerable size a great variety of them can be naturalized in different parts of the grounds. Nearly all spring-flowering bulbs do admirably in grass, and they can remain there year after year where this is not cut before the foliage withers. Such plants as the Narcissus poeticus and the blue Scilla campanulata never look so well as they do in the tall grass which may be allowed to stand beyond the close-clipped lawn. Other plants of this class find their most congenial home in the shrubbery and on the edges of shrubbery. The tall, strong-growing, autumn-flowering Compositæ, such as Sunflowers, Asters, Golden-rods, Rudbeckias and Heleniums, are seen at their best just now in such positions, and in the summer the tall spires of the Foxglove never look so well as they do on a shrub-border against a background of foliage. Then, where there is a water-margin, we can have Irises and Cardinal-flowers and Lythrums, while tall Lilies and Galtonias never grow more luxuriantly or show to such good advantage as they do in beds of Rhododendrons.

But because hardy plants are suitable for the humblest cottage and appeal in the strongest way to homely popular taste, it must not be supposed that they offer no field for the refinements of the specialist. It is easy enough to grow an Ascension Lily and the other well-known species which add so much beauty to the garden; but if the grower's admiration for this special genus develops into enthusiasm, he will find that the gathering of a collection that will satisfy his yearnings, and the investigations of their secrets, will suffice to occupy the leisure of a lifetime. The same is true if one would aim to become an expert in cultivation, or to have assured and authoritative knowledge of the Irises, the Daffodils, the Tulips, the Saxifrages and even of the hardy Sedums and Sempervivums, and of many other families of plants.

To give anything like an adequate reply to inquiries about selecting varieties of hardy plants, the time of planting them and the methods of cultivating them, would require a large volume. The readers of Garden and Forest ought to be well informed as to the care of this class of plants, as we have hardly published a single number without devoting some attention to them. We have no space for this branch of the subject here, nor is it the purpose of this article to oppose the use of formal flower-beds, which certainly have their place in many small enclosures, and in connection with architectural surroundings. Much less is it our intention to discourage the use of tender plants, for there is no garden of any size which cannot be made more attractive if a certain proportion of tender plants are grown in it every summer. What we wish to insist upon now is simply that hardy plants can be had in almost infinite number and variety, and that persons who have no greenhouses, and do not wish to incur the expense of buying a number of tender plants every year, can find among the hardy ones every desirable quality in color and fragrance and form; that there are no bedding-plants which equal in beauty the Lilies and Larkspurs, Irises and Daffodils, and many more that any one can obtain; that there are hardy plants suitable for every season, every use and every situation; that a hardy-plant garden can be made interesting in this climate from February until December, while tender bedding-plants can only be used for summer decoration; and that many hardy plants continue to increase in vigor and beauty year after year, while tender bedding-plants necessitate the trouble and expense of annual renewal. We hardly need to add that, while most of these plants are best adapted to informal planting, no one can secure any genuine intelligent pleasure from them when planted haphazard. One value of the hardy garden is the constant and loving attention it demands. This care must begin at the very outset in selecting from the mass of weedy and malodorous kinds only such as have distinct merit, and the same care must continue throughout all the work of arranging and cultivating. A good wild garden is never a carelessly planted garden. The very look of untamed naturalness which it wears is the achievement of the truest art. In the same way hardy plants which are best able to take care of themselves in the struggle for life make constant demands upon the care of the cultivator if they are to reveal their beauty in all its fullness.

A New Forage-plant.

Some years ago a knot-grass, which was discovered by Maximowicz on the island of Saghalen, under the name of Polygonum Sachaliense, was introduced as an ornamental plant from the Jardin d'Acclimatation at Moscow. It grows vigorously and has been recommended for use on river-banks and in other positions where tall and fast-growing perennials are needed. It is rather a handsome plant, with smooth alternate leaves about an inch and a half long and an inch wide, with leaf-stalks of cardinal-red. Its inconspicuous flowers produce a good deal of nectar and are much frequented by bees. This Polygonum has especial interest just now, however, as a forage-plant, since it has been recommended in several of the European journals for that purpose. It is said that the young plant quickly pushes up fresh shoots in all directions and will soon occupy an area a yard square. These shoots when young are edible, and when blanched can be used as asparagus, although they are not of so high quality. When they have grown from three to five feet high, these shoots can be cut and fed to cattle, which seem to relish them very much. Perhaps the second growth of the first year will not be strong enough for a cutting, but in subsequent years three or four cuttings can be taken every season. This Polygonum is readily propagated by division of the rhizomes, which may be planted in August and September or in early spring. If they are set out a yard apart the surface of the soil will be covered in a year or two with an abundance of forage.

Some European experimenters have tried to use another knot-grass, Polygonum cuspidatum, as a forage-plant in the same way, and claim that it is also relished by cattle. The vigor of this plant will not be doubted by any one who has seen it growing in the Central Park of this city, where it quickly becomes an aggressive weed. Whether or not it will endure an excessively dry climate remains to be seen. It seems to flourish here particularly in moist deep soils, but its stalks appear altogether too tough for succulent forage. However, it would be worth while to try both these plants where no other forage-plants will grow, especially since the Saghalen Knotweed has the endorsement of such authorities as Monsieur Edouard André and Monsieur Gustav Huot. Its yield of green fodder is said to range from sixty tons to one hundred and twenty tons per acre, and it might prove a valuable crop for ensilage. It is in favor of P. Sachaliense that it belongs to the same family as plants of such economic value as Buckwheat and Rhubarb, but after all we hardly think it probable that it will supersede Indian Corn as a green fodder in the great Corn-belt of this country.

Botanical Notes from Texas.—XI.

As we go westward on the International and Great Northern Railroad from the city of San Antonio we soon leave the alluvial "black lands" behind us, and find that even the bottom-lands of the creeks and rivers are sandy. So much of the vegetation that we have been accustomed to seeing has disappeared, and a more south-western flora taken its place. Ratama is now largely in competition with Huisache and Mezquite for occupancy of the richer lowlands, while other species of Parkinsonia, Acacia and other genera cover the hills.

Contrary, perhaps, to the general notion in regard to this portion of Texas, most of the state south of the Southern Pacific Railroad, and west of the meridian of San Antonio, is a forested region. But it is a forest of shrubs, and of the meanest and the wickedest shrubs imaginable—dry-country shrubs, which have struggled so long and so hard for an existence amid floods and long-continued droughts and extreme heat, that they have become literally case-hardened and completely perverted in their ways. That they may be better protected, they have armed themselves with prickles and thorns and have set themselves in a most effectual way against animated nature. There are thorns terminal and thorns axillary; thorns single or clustered, straight or recurved, on stem, leaves, even on fruit, pointing in all directions, and ready to tear one's clothes or flesh, as either may be presented to their cruel points. Mexicans, having exhausted the rest of their vocabulary of epithets, call some of these shrubs "Una del gato" (Cat-claw). Such thorns will penetrate the leather of gloves and boots almost as easily as the untanned human skin. A botanist in this region is specially favored if he escapes with only bleeding hands. When these shrubs mass themselves, the thicket is impenetrable for beast or man.

In extenuation of such a condition of perpetual war, these shrubs plead, and perhaps effectually, the common right and law of self-defense—unfavorable climatic conditions preventing their complete development, and causing the starved and stunted growth which changes their leaves and branchlets into weapons of defense; to which may be added the ravages of herb-eating animals, domestic and feral, which, unless the shrubs were armed from base to summit, would soon destroy all of them within their reach. Granting, however, the well-taken plea of self-defense put in by the shrubs, it is still true that they do not discriminate between friends and foes.

We stopped for a few days at the pleasant little village of Pearsall, lying about fifty miles south-west of San Antonio. The people of Pearsall are very modest in their ways, for, while their town contains nearly a thousand persons, they still call it a village. Its location is very nearly on the ninety-ninth meridian. It is a little south of the twenty-ninth parallel. The town is built upon a slight eminence of dark brown ferruginous sand-stone, the disintegration of which forms the coarse sand of the region about. Such a rock formation gives a flora very different from that of the region where our latest Notes left us. There are few places in Texas, so far eastward, where we could see six or seven species of Acacia, at least two species of Parkinsonia, and representatives of many other genera of shrubs and smaller plants. Most of them are Mexican forms.

Galactia heterophylla is common here, as might be supposed from its soil-condition. This is a new station for the species. Since my visit to Pearsall I have found this plant very abundant in the vicinity of Beeville, also a hitherto unreported station for it. The known range of the species may now be given as extending from Llano County, on the north-eastward, to the ninety-seventh meridian, and southward to the Rio Grande, or near it. It still remains, so far as known, an exclusively Texan plant.

At Pearsall we encounter Rhus microphylla, a respectable and rather handsome Sumach, remarkable in the family for its very small leaflets, of which the descriptive name is significant. They are only about a half-inch long. The main rachis is winged between the pairs of leaflets. Its red acid fruit has a turpentine flavor. The species is innocuous. Mexicans call it Correosa. We may call it Small-leaved Sumach. It extends far westward. Ephedra antisiphilitica is common here. It is one of the few native species of the gymnospermous order Gnetaceæ. This shrub has a greenish Rush-like habit, by which it may easily be distinguished, as well as by its peculiar flowers and fruit. Its coarse, rather rigid, branches are nearly leafless. Mexicans regard its medicinal properties as of great value. It is a wonder that Mexicans ever die, as they have one or more remedies for every disease. While at Pearsall a Mexican brought in one of the many plant "rattlesnake masters." "It is plain to see," the old man said, "that this plant must be a sure-enough cure for the bite of a rattlesnake. You see that its leaves are spotted like a rattlesnake, and its flower is like the open mouth of one, with its fangs raised, and ready to strike." That is the old doctrine of "signatures" intensified. It shows how little reliance can safely be placed upon such asserted remedies.

Another celebrated Mexican remedy, used also by Americans, in intermittents, and also as an astringent, is an infusion or a decoction of the bark of Casteta Nicholsoni. This is a handsome evergreen shrub, usually unarmed, but with the tips of its branches sometimes spinose; the narrowly oblong leaves, whitened on the under surface, with recurved margins. The small red flowers are succeeded by two to seven or more rather large, oblong, red drupes, borne on spreading stems. Usually, when the number of drupes is five or more, one is borne in the centre of the ring, and raised so as to form a conical cluster. The intensely bitter principle of the shrub resides in the drupes as well as in the back. From a personal trial of the drupes, the writer is not surprised that even an American should refuse to shiver with chills when the penalty for the act is to drink a strong infusion of the bark or of the drupes of "Amargoso," as Mexicans call our plant. I saw only one plant at Pearsall, but it is very common westward, extending into Mexico. Parthonium lyrata is abundant from about this meridian westward. It is a much smaller plant than its congener, P. hysterophorus, from small specimens of which it may readily be distinguished by its lyrate leaves.

Along the Nueces River and westward grows Jatropha Berlandieri, a much smaller plant than J. stimulosa, with glaucous laciniate leaves and red flowers. What it lacks in size above, it largely makes up below, ground in shape of a huge turnip-like root. The plant is commonly known as "Wild Turnip." "In fact," an old ranchman said to me, "it is a regular turnip, though it does not look much like one." Hogs are said to fatten on these turnips when they are abundant. They are also sometimes roasted and eaten by men, but not with much success where the experiment is tried on an extensive scale. My informant, who has lived in south-west Texas forty years, said that the turnips possess powerful and dangerous cathartic properties. On two occasions known to him during the war detachments of soldiers who had encamped on the banks of the Nueces ate so freely of these turnips, roasted, that they were detained several days in consequence of their presumption.

There is no running water nearer Pearsall than Frio River, six or more miles away. The bottoms along the river are heavily timbered, for this region, with Elm, Oak, Hackberry, Soapberry, Ash, and an occasional Cottonwood. The Ash here, as at San Antonio, probably a form of Green Ash, has some of its fruit three-winged.

Kansas City, Kansas. *E. N. Plank.*

Foreign Correspondence.

London Letter.

ALTHOUGH the enormous Agricultural Hall at Islington is not well adapted to the exhibition of plants, nothing but praise can be given to the Royal Horticultural Society and to the numerous exhibitors for the display of flowers, fruits, plants and garden appliances held there on four days during this week. While Roses, Gladioli and fruit were the principal exhibits, there were many other prominent features, as large groups of Ferns, Palms and other foliage-plants arranged for effect, collections of cut flowers of herbaceous plants and magnificent collections of fruit-trees in pots, bearing heavy crops of large, well-ripened fruits.

Compared with the summer exhibition held in the gardens of the Inner Temple, the number of new and rare plants shown at Agricultural Hall was exceptionally small. It was not, however, intended that this exhibition should be anything other than a big object-lesson in English horticulture for the edification of the enormous population on the north side of London, which rarely, if ever, has an opportunity of seeing the displays made in the West End.

Among the new and rare plants I noted the following as worthy of special mention:

CORNUS MACROPHYLLA VARIEGATA was shown by Messrs. J. Veitch & Sons under the name of C. brachypoda variegata, and was awarded a first-class certificate. It was introduced by Maries from Japan about fifteen years ago, and has proved hardy at the Coombe Wood nursery of Messrs. Veitch. It is also hardy at Kew. The leaves are ovate-lanceolate, acuminate at both ends, glaucous green, with large patches and marginal creamy white variegation. It is a handsome and apparently easily grown shrub, which is certain to become a popular garden-plant. The type is a variable species, and is a native of the Himalaya as of China and Japan. According to C. B. Clarke, in the *Flora of British India*, it forms an erect tree, forty feet high, with horizontal branches, and ovate leaves six inches by three

inches, or even larger. He also states that C. alternifolia of North America differs very little, if at all, from this.

Picea pungens glauca, the Blue Spruce of Colorado, was represented by a group of beautiful examples about four feet high, and colored perfectly, from the nursery of Mr. A. Waterer, who possesses a large stock of this most ornamental conifer, which promises to be an exceptionally good garden-plant. At Kew it grows well, which is saying a great deal in its favor, the poor gravelly soil and smoke in winter being unfavorable to Piceas generally.

Lilium Henryi.—Although represented only by a plant four feet high with a few flowers, this species was awarded a first-class certificate. It is in flower still at Kew, some of the plants being eight feet high, bearing twenty or more flowers each. A new Lilium in the way of L. longiflorum, but having narrower and more densely arranged pale green leaves and hairy filaments, was shown by Messrs. Wallace, of Colchester. It was suggested that it might prove to be the L. myriophyllum of Franchet, one of the new Chinese Lilies about which I wrote a short time ago.

Helianthus rigidus, var. Miss Mellish, is a beautiful variety of one of the most useful of all Sunflowers, the flowers being nearly six inches across and of the clearest canary-yellow color, with a well-formed purple-brown disk. It obtained a certificate.

China Rose, Duke of York, a new variety shown by Messrs. W. Paul & Son, Waltham Cross, is a pretty addition to this charming section of garden Roses. Its flowers are small, fragrant, well formed, pink flushed with red, and most attractive. The Tea Roses shown were excellent, and as they are now becoming very popular in England for summer-bedding, I noted the names of some of the most effective. Several large beds, each devoted to one kind of Tea Rose on the lawns at Kew, have been greatly admired this summer. They flower constantly, much more so than the hybrid perpetuals, and they are both graceful and fragrant, as well as effective in color. Those noted at the exhibition were Madame Lambard, Viscountess Folkestone, Homer, Christine de None, Madame Eugène Verdier, Corinna, Jules Finger, L'Ideal, Laurette Messing and Marie Van Houtte. Cuttings of these are struck in autumn and kept growing in a frame till May, when they are planted out in beds of good soil, where they soon grow into nice plants, flower profusely all summer and on until the frost comes. The effect is much better when a quantity of each kind are used to fill each bed than when a mixture of sorts is planted.

Clerodendron trichotomum.—This old garden-plant forms a large shrub or small tree out-of-doors in the south of England, and flowers freely in autumn. The flowers are in terminal clusters, white, with purplish calyces. It was awarded a first-class certificate, presumably because it had never been awarded one before. It is not as effective a plant as C. fœtidum, which is also hardy in England, but dies down to the ground in winter. Both species are Japanese. [Clerodendron trichotomum attains a large size in Washington, where it is perfectly hardy, and it may live farther north, as it is a native of Yezo, where the winter cold is nearly as severe as it is in New England.—Ed.]

Weigela Eva Ratke, shown by Mr. A. Waterer, is a bright crimson-flowered variety, very free, and, according to Mr. Waterer, a perpetual bloomer. It is certainly the best of the dark red varieties, and it appears to flower at a late season, long after the others are over. A first-class certificate was awarded to it.

Agave Leopoldii II.—This is said to be a hybrid between A. schidigera and A. filifera, and was raised by Mr. W. B. Kellock, who showed a plant of it, which was awarded a first-class certificate. It has rigid ensiform leaves eighteen inches long and half an inch wide, the margins clothed with long white ribbon-like filaments. It is very similar to A. Taylori, which was raised by a Mr. Taylor, of Highgate, and was distributed by Mr. B. S. Williams in 1874. There is a good plant of it in the Kew collection. Its parents were A. geminiflora (Bonapartea juncea) and A. filamentosa, a variety of A. filifera. I am a litttle skeptical in regard to the parentage of A. Leopoldii II., which has much narrower leaves and is otherwise different from both A. filifera and A. schidigera. It is certainly a beautiful Agave.

New Orchids.—These were few in number and not particularly striking in character. Habenaria carnea, figured in Garden and Forest in vol. iv., p. 487, obtained a first-class certificate, the plant shown by Messrs. F. Sander & Co. being ten inches high and bearing seven good flowers. Cypripedium Edwardii, a hybrid between C. Færrianum and C. superbiens, and C. Sander-superbiens, a hybrid between C. Sanderianum and C. superbiens, both obtained awards, though it would be difficult to say why, unless for the reason that they are hybrids. Ærides Ballantineanum aureum, a yellow tinted variety, also obtained a certificate.

Exacum macranthum, the beautiful gentinaceous plant from the Ceylon hills, was shown in fine condition by Sir Trevor Lawrence and obtained a certificate. Dahlias, Gladioli, Carnations and a few other plants were awarded certificates. The Gladioli from Messrs. Kelway, of Langport, and from Messrs. Burrell & Co., of Cambridge, were excellent. Nothing at the exhibition bore stronger testimony to the skill of the breeder and cultivator than these really wonderful Gladioli.

London. *W. Watson.*

New or Little-known Plants.

Hydrangea vestita, var. pubescens.

We have more than once spoken of the value in our northern gardens of this hardy shrub, and on page 17 of volume iii. a figure of a flowering branch of life-size was published. In the present issue we have reproduced a photograph of a plant in Mr. Olmsted's garden in Brookline, Massachusetts, made by Mr. F. L. Olmsted, Jr. It well shows the habit and the free-flowering quality of this useful plant, which is the most beautiful of all the Hydrangeas which are absolutely hardy in New England, and the earliest of all the species to flower in this climate.

Hydrangea vestita, var. pubescens, is a shrub four or five feet high, with slender branches which form a dense broad mass six or eight feet in diameter, ample pale green ovate leaves acute at both ends, and large flat cymes of flowers five or six inches across. The ray-flowers are numerous, an inch or more in diameter, and are at first pure white; in fading they turn rose-color, and, although they begin to open toward the end of June, remain quite fresh on the branches until November.

Hydrangea vestita, var. pubescens, is a native of northern China and Manchuria, and was one of a remarkable collection of trees and shrubs raised several years ago in the Arnold Arboretum from seed sent from Pekin by Dr. Bretschneider, the learned botanist and physician for many years attached to the Russian Legation in China.

Cultural Department.

Timely Hints on Lilies.

It is only too true that in this climate one is never quite ready for frost, no matter how late it defers its first visit. In our section it is never safe to leave tender plants out after September has come round. This season frost visited this town the first week of the month, though this is unusually early. The bulb season has arrived, and no time should be lost in obtaining those necessary for outdoor planting while there is natural warmth in the soil; there is nothing gained by delay, and much is lost, for the sooner the bulbs are planted the more growth they make before frost comes, and the better display they are able to make next season. This especially applies to the Lily family. Lilium speciosum and other Japan Lilies do not arrive here until after it is too late to plant in the open ground, hence the advisability of obtaining good American-grown bulbs of such kinds as thrive well in this climate. L. auratum, L. Harrisii and L. longiflorum are best obtained, as newly imported bulbs, especially L. auratum, while L. tigrinum, L. Batemannæ and all the varieties of L. speciosum grow

so well here in the open ground that they are easily kept over by dealers, and can be supplied in good strong bulbs at this season. The European Lilies come in at this season from the Dutch growers, and should be planted without delay, whether for the planting of new bulbs or the separation of old clumps. Lilies make considerable roots in the autumn from the base of the bulbs. These roots go to strengthen the shoot that comes forth next spring, and the stem, when well started, puts forth roots to support the flowers, so it is obvious that the more roots in the fall the better the growth next year.

It has always been my opinion that L. auratum could not be grown on year after year with its native vigor maintained, and this had been stated in the columns of GARDEN AND FOREST, when a correspondent sent me bulbs of a variety called L. auratum macranthum, which he said were perfectly easy to grow on year after year. This kind is also known as the variety Platyphyllum, owing to its broader leaves more resembling the Speciosum section, as do the bulbs themselves, and it is a pleasure to be able to state of this variety that it is a most satisfactory Lily in every respect, especially the flowers themselves. Importers of Japan bulbs would do well to make a note of this variety, for I do not know of any place where it can be procured in this country. Mr. Brydon's great success with L. giganteum will, no doubt, encourage many to try this noble Lily, and I would warn all such to be careful and not pay high prices for bulbs of this species unless they are guaranteed true. I know of an instance where the commoner L. cordifolium was supplied last season, though the large price paid ought to have guaranteed the purchaser against any mistake, whether intentional or not. L. giganteum being a Himalayan Lily, is best obtained from European dealers, Dutch bulb-growers catalogue it, but I question if any growers here have it to sell. It is true that the flowers are of small size in comparison to the stature of the plant, but I know of no garden-plant that has such a distinguished appearance when seen as it was at Yarmouthport this season.

None the less remarkable were the fine stalks Lilium Wallichianum superbum was throwing up, for they surpassed all others I had seen for vigor, and promised great beauty later in the season. Mr. Brydon assures us of its hardiness, and also of the fact of its producing small bulbs in the axils of the leaves, like L. tigrinum, and he showed us some in boxes that were flowering when two years old. There is a great future for this fine Lily, judging from the way it is behaving in every place where I have seen it, though its height is against it for pot-culture.

One thing this season has taught us, with considerable emphasis, is that Lilies must be sure of moisture at the roots at all times; there is no difficulty about this in moist localities, except during a dry time in summer—just when they need water most; hence many failures. As I have tried to explain, there is no period of the year when the roots of Lilies are inactive, for as soon as the stalk begins to decay the new roots begin to push forth from the base of the bulbs to fortify them for the work of another season. Lily-stalks should never be pulled out, no matter how well ripened, or water will be conducted direct to the heart of the bulb and trouble will begin at once.

In planting Lilies, and, in fact, all other bulbs, the manure used should never come in contact with the bulbs, but they should be covered first with soil and the manure should be put on afterward. The older this is the better; decayed leaf-soil is the more suitable, if free from fungus, but Lilies like a rich soil. The old idea was, never to give Lilies manure or manure-water, but this theory must be considered obsolete. One of the largest growers of L. Harrisii in Bermuda told me that no farmer there would willingly grow a second crop of Lilies—it impoverished the soil more than any other crop, a fact which Lily-growers here should bear in mind.

South Lancaster, Mass. *E. O. Orpet.*

Tuberous Begonias.

WITH cool days and nights these plants are in perfect character, standing up stiffly without the look of languor which characterizes them in hot days. The hybrid Begonias, having long since reached and, in fact, passed a desirable limit of size, the florists have turned their attention in other directions. One of the most attractive new breaks is that of variegated petals, instead of pure selfs, to which we have been accustomed. Messrs. Vilmorin introduced this year a new strain under name of B. oculis alba. The flowers prove very handsome; the petals are more or less deeply margined with color, fading to white at the base or centre of flower. This strain is well fixed, the coloring coming true from seed. The plants are of good habit, with erect flowers. From Lemoine we have the first crosses with B. Baumanni, the species with scented flowers. B. Excelsior is a cross with B. Veitchii, the modification being principally in the rich coloring of the latter variety. The perfume of B. Baumanni does not seem to be appreciable in my specimen of the cross.

The greatest improvement that could be made in tuberous Begonias does not consist in either new form, new colorings or in modified size. These we have in sufficiently great variety. One desirable trait they almost entirely lack, and until this is infused into them they will never take a place as entirely satisfactory plants. No one will gainsay the beauty of a good strain of these flowers, perfectly pure in color, with soft tints and a pleasing variation of forms. The plants are easily grown into nice specimens, and for a show of color in a greenhouse they almost vie with the Azaleas. Their bad trait is the tendency to drop their blooms, sometimes even without careless treatment. As cut flowers they are quite useless, except for shallow-dish arrangements. Flowers of such habit, though beautiful for conservatory adornment, can never be rated with those favorites which are more stable and furnish useful sprays for the house. Gardeners generally are practical men, and as their services are usually rated by the amount of good flowers they can furnish for decoration, they are not given, for any length of time, to cultivate largely the less useful flowers, even if these are showy. If something of the character of B. Socotrana could be infused into the summer-flowering hybrids it seems as if they would rate among the most valuable of summer-flowering plants for all purposes.

Elizabeth, N. J. *J. N. Gerard.*

Rock-garden and Border.

THE ROCK-GARDEN, at its best in the spring, has yet many plants in bloom. The Heliotrope-scented Primula capitata has been more or less in flower all summer. A year ago last spring we planted a patch of it on the base of a northern slope. All that the summer's sun reached died; only those plants quite shielded lived through the winter. In this way we have been able to establish the lovely Ramondia Pyrenaica, a plant hard to establish in the more genial climate of Great Britain. Some twenty-five plants of R. Pyrenaica passed safely through last winter, and are now firmly established on the side of a declivity facing north and immediately below a large rock which entirely shields them from the sun's rays. Another plant which surprised me this spring, by coming out in a more thrifty condition than it ever grew in a greenhouse, is the beautiful silvery leaved Japanese Asplenium Goringeanum. It is a fact that plants without number are hardy only in the sense that they will endure an extremely low temperature better than an extremely high temperature.

Campanula Carpathica is still in bloom, while Heuchera sanguinea lingers on. Such plants as these are treasures in the rock-garden, since they are never unsightly. Sedum spectabile is just unfolding its pink blossoms. Calceolaria scabiosiæfolia, a neat little annual, can be very effectively used for covering an odd bare spot, and so, also, a new dwarf yellow Toadflax, Linaria Dalmatica. A few of the Cyclops Pinks continue to flower. These come in nicely for cutting. Œnothera Missouriensis, with gorgeous yellow flowers, is altogether out of proportion to the stature of the plant. It is low-growing, rather trailing, with fleshy roots, and is a very satisfactory plant to grow, not at any time looking shabby. Cuttings strike quite easily, and seeds germinate with equal facility. Ruellia ciliosa, a dwarf member of the Acanthaceæ, from Texas, is an excellent plant for covering dry sandy banks in the full sun. Its delicate lavender-blue flowers are produced from the axils of the leaves from spring until autumn.

Along the borders a few stray Delphinium-blooms give here and there a touch of blue, in pleasing contrast with golden Sunflowers and pink Phloxes. Clematis tubulosa, a very handsome deciduous sub-shrub from China, should be better known. The petals being connate, the flowers appear tubular, and are about an inch long, with recurved limbs; they are deep blue, and borne in clusters in the axils of the leaves. C. tubulosa blooms from midsummer until late autumn. Its handsome, dark, shining foliage and neat habit make it a desirable plant for lawns along the edge of shrubberies. Nearly allied to this is C. Davidiana, with sweet-scented porcelain-blue flowers.

Among the multitude of autumn-blooming Asters few are as showy as A. Bessarabicus. The flowers are large, lavender-blue, with a yellow disk. Being of dwarf stature it is a more desirable border-plant than our handsome New England Aster, whose proper place seems to be in the wild garden. A. ptar-

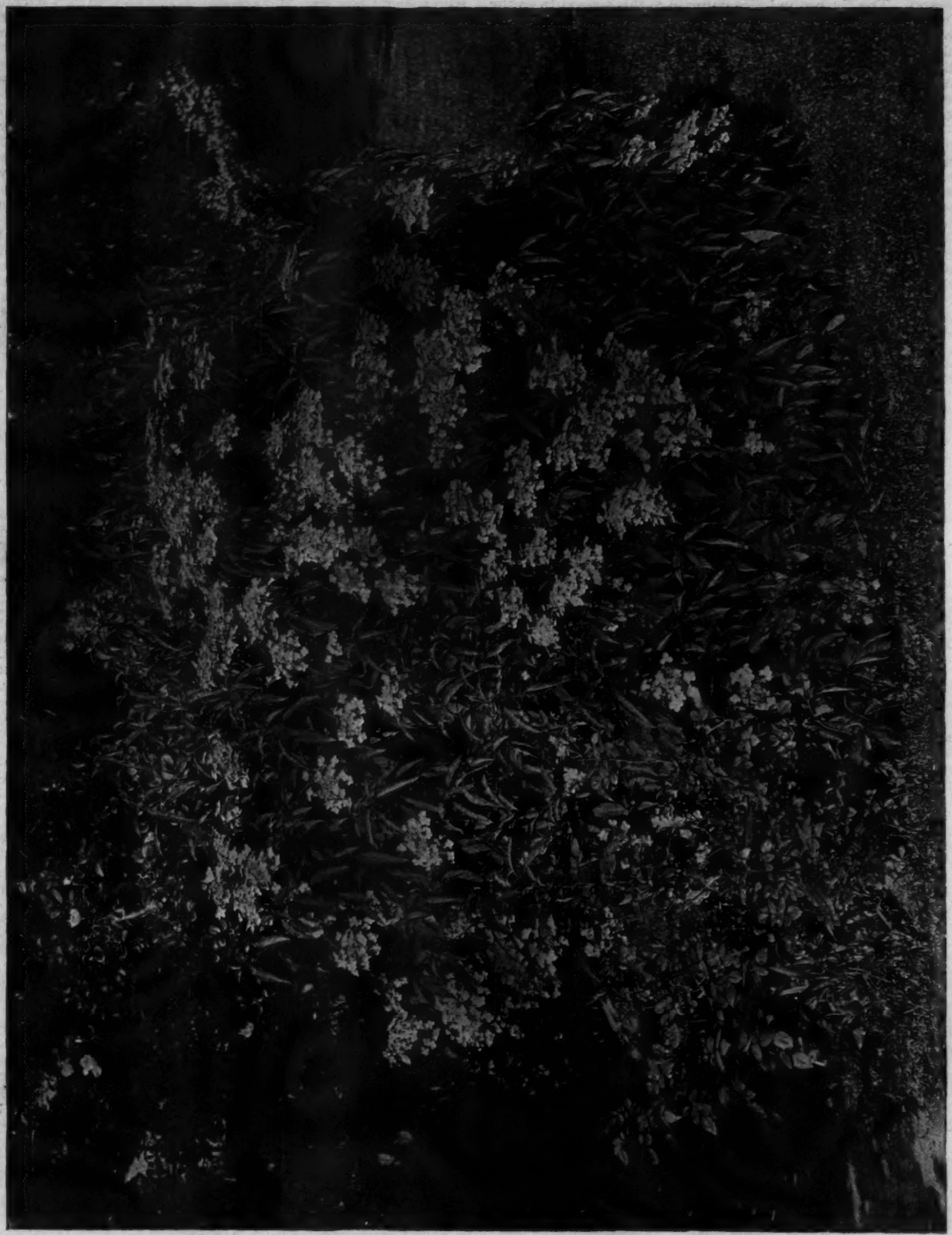

Fig. 60.—Hydrangea vestita, var. pubescens.—See page 394.

micoides, nearly allied to our pretty little A. ericoides, is another desirable kind, and sprays of this make up very neatly in bouquets. Veronica longifolia, var. subsessilis, a late-blooming Speedwell, deserves to be more generally cultivated. Its long, handsome spikes are an intense blue, exceeding in lustre any known variety. Chelone Lyoni, though not really handsome, is an effective border-plant. It is an ally of the Pentstemons. The upper limb of the corolla being extended obliquely over the mouth gives it the appearance of being closed. The flowers are pink and carried in clusters near the tops of the stems, which, in moist soils, grow to the height of four feet. Naturally a plant for moist situations, it is a fit companion for the Cardinal-flower along the margin of a lake or pond. The handsome Galtonia candicans can be recommended as a thoroughly hardy plant in proper situations. High and dry in a bed of Ghent Azaleas it has been killed several winters, while it has survived in the Rhodendron bed, which is moist at all times and really wet in winter. It is now fully six feet tall. It is of easy culture; seeds sown in spring germinate as readily as Onion-seeds and bloom the second year. The lovely Japanese Funkia subcordata is handsome. Here in Massachusetts it does not start into growth early enough to be injured by spring frosts, as often happens farther south. The complaint comes from Virginia that it is likely to sun-burn in that climate. Their handsome flowers rival in beauty and fragrance those of the Eucharis. To-day I made up a most effective basket of these flowers, with a few Grasses and Maiden-hair Fern. Japanese Anemones are also too rarely seen. Every year I grow a number of specimen plants for piazza decoration, and their chaste beauty never fails to draw forth praise from the true lover of plants. After Sunflowers, which usually wind up the season gorgeously, we shall pick a few blooms of Violets, which have never left us since early spring.

Wellesley, Mass. *T. D. Hatfield.*

Some Greenhouse Plants.

A NEW ABUTILON.—Among the novelties still uncommon is variegated Abutilon, introduced by a French firm under the name Souvenir de Bonne. This variety somewhat resembles A. Thompsonii in habit, though apparently more slender in growth. The leaves are about the same size, of a dark green color, with a broad and irregular margin of white. A. Souvenir de Bonne flowers quite freely, and if the variegation stands exposure to the full sunshine, it will doubtless prove a valuable plant for summer bedding and for conservatory decoration.

DRACÆNA SANDERI.—Another novelty of European origin is being disseminated under the name of Dracæna Sanderi, but this title is possibly incorrect, for the plant resembles a Cordyline rather than a Dracæna. It is of moderate growth, and has narrow leaves, with a tendency to recurve; the color is light green in the centre of the leaf, with a margin of white. The plant may be increased readily from cuttings, and, so far as can be judged from a short acquaintance, it is likely to be a useful variety for indoor use at least.

SWAINSONA GALEGIFOLIA.—The white-flowered variety of this species is a handsome plant, and its flowers, while not a novelty, are uncommon and not generally known, as appeared when they were used as cut flowers by florists last winter. The Swainsonas are chiefly Australian plants, and enjoy greenhouse treatment—that is, a temperature of about fifty degrees at night. The most satisfactory method of growing the variety Albiflora is to plant it out in a bed of good light loam in the conservatory, where it will produce an abundance of long racemes of pure white pea-shaped blossoms during the winter and spring. From its semi-scandent habit this plant requires some support—a strong stake or two, or, better still, to be tied to a pillar, if such is available. Cuttings root readily in spring if made from young wood and kept moderately close for a time.

Holmesburg, Pa. *W. H. Taplin.*

Clematis paniculata.—The first flowers of this Clematis opened August 27th, a week later than usual, and the flowers will be at their best about the 15th of September. It is surprising that such a magnificent climber should so long have remained comparatively unknown, for C. paniculata was introduced into English gardens more than a century ago. In a sunless autumn in England the growth rarely hardens enough to set the flower-buds in time to open, and it seldom blooms in that country. For many years plants were in possession of the Arnold Arboretum, Jamaica Plains, Massachusetts, under the name of C. robusta, and of Messrs. Woolson & Co., Passaic, New Jersey, under the name of C. paniculata, a name which is now accepted. Nothing, however, seems to have been done toward increasing and distributing the plant until Mr. Orpet, then with Woolson & Co., succeeded in grafting it upon stocks of C. Virginiana and C. Stans. It is a Japanese plant, and was naturally supposed to be tender, the precaution being taken at the Arboretum to protect every winter the vines, which when exposed were frequently injured. The plants at the Passaic Nursery were more or less injured every winter, although protected by considerable natural shelter. Seeds sown in the autumn and wintered over in a frame or cool greenhouse, commence to germinate in spring, rather sparsely at first, but in larger numbers as the season advances. By this method thousands are raised annually, and, being acclimatized as seedlings, they are more vigorous, longer-lived, and make far better plants. Our plants are now six years old, with a girth of stem at the base of nearly five inches, and each plant covers over two hundred square feet. With us, however, their growing area is limited. At the Eastman Cottage, belonging to the Wellesley College, a plant was photographed last year which covered nearly the whole of one side of a gable roof and more than four hundred square feet, besides being trained around the porches on the first story. The myriads of white star-shaped flowers, an inch or more in diameter, are produced in such abundance as almost to hide the foliage, and they have a delicious Hawthorn fragrance. The flowers are succeeded later by an effective mass of red seeds, surmounted by a gray pappus.

Wellesley, Mass. *T. D. H.*

Hardy Annuals.—Many of these can be treated as biennials if sown now in a sheltered spot or in any vacant places along the herbaceous border that may need filling. I always make a sowing of Alyssum, Eschscholtzia, Calliopsis, Centaurea Cyanus, Mignonette, and many others that are usually sown in spring. The only drawback to this plan is that they are apt to be forgotten when the borders are spaded up. Those I sow in the herbaceous border are covered with a thin coating of well-rotted manure, as are all the other plants. This is not disturbed until everything has commenced growing, when there is no danger of turning them over. The manure is not raked off, but carefully forked in around the plants late in spring. Such plants as Petunia, Portulacca, Larkspur, Poppy, Aquilegia, Candytuft and Dianthus can be left to take care of themselves, for, if allowed to ripen their seeds, they will sow themselves and come up the following summer, when they can be thinned out, and allowed to fill the same places again. It is not too late to sow some of the hardier biennials. They will start growing in spring as early as any of the weeds begin to show, and be much more hardy than if sown in spring. The same is true of some vegetables. New Zealand Spinach, for example, rarely vegetates if sown in spring; for many years I have sown it at the end of October, and it always comes up as soon as the soil gets warm the following summer.

West New Brighton, N. Y. *Samuel Henshaw.*

Correspondence.

How to Identify Certain Conifers and Oaks.

To the Editor of GARDEN AND FOREST:

Sir,—Will you be good enough to point out the differences between Chamæcyparis and Thuya, so that they can be recognized by one not an expert botanist? Are Chamæcyparis sphæroidea and Thuya occidentalis found in the same habitat? Does the former grow wild in Wisconsin?

Will you also perform the same service respecting the Black Oaks, Quercus coccinea, Q. rubra and Q. tinctoria? How can they be distinguished from each other?

Whitewater, Wis. *Albert Salisbury.*

[Chamæcyparis and Thuya resemble each other so closely in most important botanical characters that by some botanists the two genera are united, although American authors have generally maintained the two distinct. In Chamæcyparis there are only one, or occasionally two, narrow-winged seeds under each scale of the little cone, while in Thuya the scales of the larger cone bear two seeds surrounded by broad wings. The stouter branchlets, the broader bright green leaves and larger cones well distinguish Thuya occidentalis from Chamæcyparis sphæroidea, or, as it is more correctly called, Chamæcyparis thuyoides, which is of a dark blue-green color and remarkable in its very slender branchlets. The two species probably rarely

Fig. 60.—Hydrangea vestita, var. pubescens.—See page 394

grow together in the same region. The Chamæcyparis is a more southern tree, ranging from the coast of southern Maine to Florida and Mississippi, and is never found growing naturally very far from the Atlantic seaboard, while Thuya occidentalis is more northern, ranging westward in the United States to northern Minnesota, and is only found in the southern states on the high Alleghany Mountains, which it follows southward from Pennsylvania.

Nothing but long experience in the woods will enable a person to distinguish the Red Oak, the Scarlet Oak and the Black Oak at a glance, although when their botanical characters are known they are not difficult to recognize, especially the first. The bark of the Red Oak is gray or light brown in color and rather smooth, especially that of the main branches; the leaves are thin, usually deeply pinnatifid with acuminate coarsely-toothed lobes; when they unfold they are smooth and lustrous on the upper surface, and coated on the lower, like the young branchlets, with pale scurfy pubescence; very late in the autumn, after severe frosts, they turn bright red. The fruit is distinct from that of any of our other Oaks; the acorn is oblong or ellipsoidal, often an inch long, and surrounded at the base only by a broad, shallow, saucer-shaped cup; once seen it cannot be mistaken for the fruit of any other American Oak. The Red Oak is the most northern in its range of all the Oaks of eastern America.

The Scarlet Oak may be distinguished by its dark, usually smooth, bark; by the leaves, which are thin, smooth, shining and glabrous, even when they first unfold, and which in the autumn turn to the brightest scarlet, and by the coarse, usually loose, scales which cover the deep top-shaped cup. The acorn is less than half the size of that of the Red Oak, and is narrower and more pointed. The looseness of the scales of the cup, although often apparent, is not a very reliable character, and the fruit of the Scarlet Oak is often difficult to distinguish from that of the Black Oak, especially as it grows in some of the western states. This tree can be distinguished from the Scarlet Oak by the thicker, darker and more deeply furrowed bark, and by examining the inner bark, which is bright orange color, and which affords a certain character to distinguish it from our other Oaks. It is also easily recognized in early spring by the bright scarlet color of the upper surface of the very young leaves, which, when they are about a quarter grown, lose this color and appear grayish white from the presence of the thick tomentum which covers them; when fully grown they are lustrous, and are sometimes almost entire, or are divided by shallow sinuses into broad lobes, or often are as deeply divided as those of the Scarlet Oak, when they are hardly to be distinguished from the leaves of that tree except by the small clusters of rusty brown hairs found on the lower surface in the axils of the principal veins. These tufts of hairs, so far as we have been able to observe, are always found on the leaves of the Black Oak, which in their shape are more variable and perplexing than those of any other Oaks. In the autumn the difference between the Black and the Scarlet Oaks is easy to recognize, as the leaves of the Black Oak turn very late to a rusty brown color, and assume none of the brilliant tints of the Scarlet Oak. The Red Oak grows usually in strong, rich, rather moist soil; the Scarlet Oak on dry sandy plains in poor, sterile soil, and the Black Oak generally on equally sterile, but rather heavier, soil. The three, however, can often be found growing side by side, and natural hybrids between them are probably common.—Ed.]

Heating Ponds for Water-lilies.

To the Editor of Garden and Forest:

Sir,—Your readers may be interested to learn of the perfect success of my plan for heating, as described on page 515, vol. v. My pond is forty-two feet in diameter and four and a half feet deep in the centre, running to two feet at the edge. The pipes (galvanized iron) are laid on the bottom in increasing circles like a clock-spring. The circles being twelve, sixteen, twenty-two, thirty and thirty-eight feet in diameter. One-inch pipe was used for the first two circles, then three-quarter inch for the next, two and a half-inch for the last, with a piece of half-inch pipe coming to an overflow near the surface, and a valve to control the discharge of condensed steam. With this valve the temperature of the pond can be regulated. The supply of steam comes from a large boiler 300 feet distant, and the pipe is laid in a brick conduit under ground, and loss of heat is lessened by using a good non-conducting material around the pipe. The pipe enters the pond through a two-inch galvanized pipe, built tightly into the side, and on the inner end is a brass stuffing-box through which the steam pipe passes, a short piece of brass pipe being used here on account of non-corrosion and smoothness. This arrangement allows for expansion and prevents any leakage of water. I have taken space to describe the manner of piping, for if a steam-pipe were built in a wall without any opportunity for expansion the result would be a very bad leak at that point. In the early days of a Lily-pond it is important to keep the temperature as high as eighty-five degrees, but later, after the plants begin to flower, a little heat at night and on cold windy days will suffice. In my pond this year we have Nymphæa rubra, N. gigantea, N. Sturtevanti, N. Devoniensis, N. dentata, N. alba candidissima, N. Zanzibarensis, N. Marliacea chromatella, N. albida, N. Caroliniana and N. Laydekeri rosea. All have flowered wonderfully, except N. Sturtevanti, and I wish some of your readers could tell me how to make it flower freely. I have had but two blossoms as yet, but they were noble specimens.

Northampton, Mass. *W. W. Lee.*

The Columbian Exposition.

Stone-fruits.

PEACHES, plums and nectarines comprise the stone-fruits on exhibition at the World's Fair the middle of September. In peaches, Illinois now leads both in extent and variety. The peach-growing area of the state comprises its southern half, and the peaches upon the shelves are largely those which close the peach season in Michigan and New York. Illinois and Kentucky are showing varieties of similar type and season. These Illinois peaches are chiefly Smock, with many specimens of Stevens' Rareripe, Old Mixon, Heath Free, Silver Medal, Yellow Stump, Late Crawford, Chair's Choice, Texas Ranger, Heath Cling; some plates of Elberta still persist. Many of these are varieties practically unknown in the northern peach areas. Among late peaches from Kentucky are Solway, Fox's Seedling, Stump, Ward's Late and White Heath. Michigan has filled her tables with a good lot of fruit, and that from the fruit region, in Oceana County, is especially interesting. This northern region, on September 13th, was showing Early Michigan, which comes in between Hale and Early Crawford, a white freestone, of much better quality than Hale. There is some discussion as to the difference between this and Lewis, but most growers consider the two to be distinct. Among other differences the Early Michigan has globose leaf-glands, while the Lewis has reniform glands. Foster and Early Crawford are among the peaches from northern Michigan. From southern Michigan the chief varieties now on exhibition are Kalamazoo, a magnificent yellow peach coming in just after Early Crawford, Snow's Orange, Barnard, and there are still a few late specimens of Mountain Rose. Some seedlings from Hale, grown by C. Engle, of Paw Paw, attract attention from their peculiar mottling, which suggests a nectarine. They are freestones and are superior to their parent. New York shows Ackley, a white freestone coming in with Crawford, Foster and the Brigden or Garfield. Iowa will show peaches later on, and now has a few interesting plates of the Bokara peach, which is said to be hardier than the Ben Davis apple. The fruits are somewhat variable, tending to be longish, with a distinct point, and are as large as Hale. The flesh is white and sweet and the pit is free. Missouri has three late varieties from Oregon County, Picquett's Late, a peach of the Late Crawford type; Wilkins, a large white freestone, and Crimson Beauty, a large late white cling; Henrietta, the latest commercial peach of Missouri, is not yet shown. The leading variety upon the Nebraska tables is Stump. Colorado has Stump, Old Mixon, Crawford, Lord Palmerston, Family Favorite and others, all remarkable for good size and color. Kansas shows Hoppen Free, a large new white variety, coming in ahead of Crawford and promising well; Old Mixon, Smock and a number of promising seedlings. South Dakota has peaches in the State Building, from trees which are laid down in winter. Canada is showing a good lot of peaches from Ontario, and the Early Crawford is the leading variety.

The region of large fruits seems to begin with Idaho, and to include Oregon, Washington and California. These states have not made much attempt to show peaches, on account of the distance, but plates of enormous specimens are on exhibition. Lemon Cling is shown from Idaho. Oregon and California both show the Orange Cling, which is the largest and handsomest peach on exhibition. In Oregon this fruit is known as Oregon Cling.

California now has an interesting collection of nectarines, comprising eleven varieties, from the veteran grower, John Rock, of San Jose. The most attractive of these are Darwin, Claremont, Golden and Downton. Nectarines have been shown from other parts of the state for several weeks.

Plums, however, comprise by far the most varied and attractive exhibits of stone-fruits. They stand shipment and keep well upon the tables, and nearly every state finds varieties which it can grow. Peaches pass from the shelves quickly, and a state which has a good collection one day may have few or none the day following. But the peach displays have been good, notwithstanding, and especially in view of the extreme drought. The peach does not appear to be modified greatly in shape by the different climates, although there is a tendency for the Pacific fruits to develop a very prominent or even prolonged tip. Other fruits from the Pacific slope show this tendency to elongate in a very marked degree. This is true of the plums. The preponderance of rounded and soft-fleshed plums is observed in all the collections from the east, and even as far west as Colorado, but once over the mountains into Idaho, Washington, Oregon and California, the long and hard prune-like types appear. The eastern fruits excel in table qualities, but they lack the size and shipping qualities of those from the west. In the collections from the eastern states, the plates from Oceana County, in the Michigan exhibit, are most interesting. They come from one of the newest and most promising fruit-regions of the east, and, contrary to general experience in Plum-culture, they thrive upon gravelly soils. The Oceana varieties now on display are Quackenbos, Guii, Pond, Lombard, Smith's Orleans, Yellow Egg, General Hand, Union Purple, and others of similar type. It is evident, from a general study of the plum exhibits, that Lombard is more commonly grown in the east than any other variety. Considering the poor quality of this plum, this popularity is to be regretted; and although the tree bears well, the fruit is very liable to rot.

One of the novel features of the plum exhibit is the large variety of native plums now shown by the states of the Upper Mississippi basin. As one sees these plums beside varieties of Prunus domestica grown in the same regions, he is ready to confess that these natives are destined to play a very large part in the pomological development of much of our interior country. Something like fifty varieties have now been shown, mostly of the Prunus Americana type, although the Miner, or northern type of Prunus hortulana, is well represented. Iowa has a large collection, among which the leading varieties are Walf, Miner, Wyant, Hawkeye, Pottawattamie and Galena. In the Minnesota section many varieties are shown, all conspicuous for the beauty of their coloring. Here leading sorts are Forest Garden, Early Sweet, De Soto, Harrison's Peach. South Dakota has a large and varied collection, among which Barnsbeck, a new seedling Americana, is conspicuous.

The Japanese plums have made some impression upon the fruit displays, especially the Kelsey, which is now shown in enormous specimens from California. Ogon and Abundance were sent from several localities earlier in the season, and a few other varieties appeared. I should not forget to say that Prunus Simoni has been sent in from a wide range of country—from Canada to Oregon. Although this fruit is often very bitter and acerb, most of the specimens on exhibition have been nearly free from these qualities, and enormous and bright-colored samples from Oregon are positively delicious. I have tested good fruits from Canada, New York, Colorado and Nebraska, while some samples from Iowa were bitter, differences for which I cannot account.

BREVITIES.

Vegetable exhibits continue to be very few. This is a branch of horticulture which seems to have been neglected on all sides. The only attempt to grow a garden vegetable upon the Fair grounds, so far as we have been able to learn, is a few vines of the new Japanese Climbing Cucumber, shown in the German section upon the island. Canada still maintains the early display of last year's vegetables, and fresh ones are now coming in freely. Those from the new north-west territories naturally attract the most attention. New York has had the most varied and most interesting display throughout the Fair. It is supplied by the State Experiment Station at Geneva, which certainly deserves great praise for its continued supplies of vegetables and fruits. It should be said that a statement made in this correspondence last June, that New York state gave the station a specific appropriation to enable it to make this display, was an error. The appropriation was not made. When the Fair closes the station will have contributed about five hundred species and varieties of vegetables to the state display. Michigan is now making a good show of vegetables, and New Jersey still has a remnant of potatoes and beans.

The best display of bloom now under glass is the Griffin strain of Tuberous Begonias, shown in the Lord & Burnham greenhouses, by the New York Florists' Club. The flowers are uncommonly large and bright, and they comprise a great variety of colors. In the same series of houses is a Rose compartment, in which are now growing the following new varieties: Senator McNaughton, exhibited by Robert Craig, a delicate creamy-white sport of Perle des Jardins; Kaiserin Augusta Victoria and Madame Caroline Testout, by Ernst Asmus; and two benches of Mrs. W. C. Whitney, by John N. May. Another offshoot of the Lord & Burnham houses has an excellent small collection of Ferns and Orchids from Frederick Sholes. The main house of the series has a tank in which various rare Nymphæas and Victoria regia are growing. This house has an excellent lot of Crotons from the Jay Gould estate and from William Bayard Cutting. There is also a good plant each of Aristolochia ornithocephala and A. Sturtevantii, the former in abundant bloom. These various collections are made under the auspices of the New York Florists' Club.

The third display of cut or seasonal flowers is now showing by the New York Florists' Club in the Horticultural Building. The display comprises twelve flats of Lily-of-the-valley from Ernst Asmus. The flats are about sixteen by twenty-four inches, and each one contains about 150 plants, all in full bloom. The first flower-show by the club comprised Gladioli, from C. H. Allen, during the meeting of the Society of American Florists. On New York Day, September 4th, a good collection of Meteor Roses, from F. R. Pierson & Co., was put on the table. A show of Carnations is booked for October, with Chrysanthemums for a closing effort. It is hoped, also, that another Gladiolus display may be secured, although recent storms have seriously injured the plants in the east.

The kaki, or Japanese persimmon, is now attracting much attention. Several varieties are shown by Mr. P. J. Berckmans, who also has pomegranates and enormous Kieffer pears. The kakis shown are named Hiyakume, Yiami-Gata, Among, Die-Die-Maru, Ko-tsura, Togarii-Gata, Yedo-Ichi, Myotan, Zengi, Hachega, Masu-Gata, Kerro-kume and Tsuru-noko. Some of these are now ripe, while the last two named are still very green, showing that this fruit covers a long season. The differences in color, shape and size in the varieties on exhibition indicate that there is sufficient variation in the fruit to adapt it to many uses and demands.

The most notable plant in flower during the first and second weeks in September is a magnificent specimen of Furcræa gigantea, better known as Fourcroya, which stands in an immense vase on the lawn in front of the New York State Building. The flower-stalk is over thirty feet high, and throws out a large, light, symmetrical panicle of drooping creamy flowers. The bottom of the plant is as good as the top, the long yellow-bordered leaves being numerous and perfect and symmetrically disposed. The plant belongs to Siebrecht & Wadley, and was brought from their Trinidad nurseries.

September 9th was California Day, and the California people gave away about six car-loads of fruit. A large platform was erected in front of the State Building, upon which peaches, grapes, plums, pears and oranges were piled in profusion, and were given without stint to the crowds. California has from the first shown a liberality in her displays at the Fair which should put many of the older states to shame.

Probably the finest single display of Cannas is that just now in its prime about the Pennsylvania State Building. A heavy belt of Madame Crozy, shown by Robert Craig, stands against the long circular porch; the plants are very free in bloom and perfect in form and color. None of the new Cannas seem to be equal to this variety for all purposes.

Chicago, Ill. *L. H. Bailey.*

Notes.

A Date Palm in Laredo, Texas, has on it nearly a bushel of dates. It is said to be the first instance of Date Palms bearing fruit in that section.

A hybrid has been procured between Azalea mollis and A. viscosa which preserves the agreeable fragrance of our native plant with the bright colors of its Asiatic parent. A new race of sweet-scented Azaleas would be a desirable addition to garden-plants.

A beautiful adornment for any room is a great branch covered with forest-leaves, set in a high vase. Such an ornament is within reach of all country dwellers, even those who have no gardens of their own. Cut freely and allowed to lie in water for a while, and then lightly shaken to remove superfluous drops, these branches will make a bower of the humblest summer home, and be a constant pleasure to the eye.

The Experiment Station of the Michigan Agricultural College has for two or three years conducted experiments to show the results of growing Potatoes under a mulch, as compared with the ordinary method of cultivation. The conclusion seems to be reached that on a small scale in a dry season mulching may be profitable. The potatoes grown under the mulch were of excellent quality and almost entirely free from scab. The unmulched potatoes were badly affected with scab, and although the yield was heavier, the quality was inferior.

We have received from Dr. J. H. Mellichamp, of Bluffton, South Carolina, beautiful specimens of a white-fruited form of Callicarpa Americana, which is quite new to us. The American Callicarpa, which is one of the most beautiful species of the genus, is probably not hardy in the neighborhood of this city, but where it can be successfully grown it should find a place in every shrubbery for the beauty of the light purple berries which cover its branches in the autumn. Dr. Mellichamp's white-fruited form will make an excellent companion for it.

According to the *North-western Lumberman*, a representative of German manufacturers now attending the World's Fair, proposes to use cottonwood for matches. Experiments with this wood have proved satisfactory, and a dealer has undertaken to supply the German manufacturers with from ten million to fifteen million feet a year of timber of the first quality. It is thought that the lumber can be delivered from vessels at Atlantic ports at $35 a thousand. White pine, which has been used hitherto has cost $65 a thousand when laid down in Germany.

The bark of the Linden-tree plays a singularly important part in the domestic economy of the Russian peasant. It is made into a sort of matting which is used for bags of all kinds, the best and heaviest being reserved to contain flour; and also into sandals which are so universally worn that some ten million pairs are required each year. For sandal-making strips of the bark of saplings are employed, and, as it takes the bark of about four saplings to form a single pair, the destruction wrought by this one industry can easily be imagined. The young trees are stripped in spring or early summer when they are full of sap.

It appears from an article in *Nature Notes* that the tourist in Switzerland who is anxious to take a piece of Eidelweiss home with him is often imposed upon by a sham plant, for which he pays a good price, and is, therefore, saved the trouble of collecting or cultivating the real thing. The artificial blossom is made of the white woolen felted material of which the coats of the Austrian soldiers are made. When cut into strips this resembles the characteristic upper leaves of the plant, particularly when the color is somewhat mellowed by exposure. These strips of cloth are carefully cut out and skillfully grafted on a stock of any weed that comes handy and which has a superficial resemblance to the Eidelweiss in habit. The specimen is then pressed and dried, and the pious fraud is complete.

Mr. Thomas Meehan writes that it is a common error to transplant evergreens later in spring than deciduous trees. The reason why trees die after transplanting is that the evaporation from the leaves and branches goes on faster than the supply can be afforded by the roots, and all trees require a little time to push out new fibres from their roots before they can begin to take up moisture in any quantity, although, no doubt, a little moisture may get through the surfaces of the old roots. The reason for pruning newly set trees is that evaporation thus far is checked, and in the case of evergreens more would be gained by playing a hose on the leaves once or twice a day at the outside than by pouring water around the roots, when there are no fibres to use it. If the earth is hammered in very hard and close about the roots the tree will usually get the moisture it needs without any superabundant water.

Nectarines are coming slowly into market, although there are many more this year than ever before. A dozen different varieties are grown in the interior valleys of California, but the names are never specified, and sometimes more than one kind comes in the same package, so that it is difficult to identify the varieties. The rich flavor of this fruit and its translucent beauty when dried ought to create a larger demand for it. Choice Bartletts from up the Hudson sell at four dollars a barrel, and Seckels bring about as much. The largest and most beautiful Seckel pears ever seen here are now coming from California. The flesh of these is fine-grained and juicy, but is hardly as spicy or aromatic in flavor as the smaller ones grown in the east. King apples now lead in price, and good Fall Pippins, York Imperial, Twenty-ounce, Maiden Blush and Gravenstein sell readily at wholesale for two dollars and seventy-five cents a barrel. California peaches are now seen at their best, the choice fruit measuring ten inches around and weighing a half-pound each. Among the leading varieties are McDevit Cling, a large golden yellow California seedling which becomes red when fully ripe; Lemon Cling, which originated in South Carolina, distinct in color, having an even light yellow skin; Orange Cling, of the largest size, round, with a distinct suture and a rich golden color with a red cheek; and Picquet's Late, which originated in Georgia, another very large yellow peach. Selected fruit of Reeves' Favorite peaches, from New Jersey, are two dollars and a half a basket, although a good quality of Crawford's Late sells for a dollar a basket. Among California plums now in market here are Fellenberg, a deep dark purple with a blue bloom; Ickworth, a large purple with fawn-colored streaks; the Hungarian Prune, which is still marketed under the name of the Grosse Prune; the Silver Prune, an Oregon variety said to be a seedling from Coe's Golden Drop, of large size and superior flavor; and enormous Kelsey plums, whose fine flavor and small pits make them desirable. The Kelseys retail on sidewalk-stands for ten cents each. The rich and showy Gærtner grapes, Rogers No. 14, of admirable quality, retail at twelve cents a pound. New Grape Fruit, received from Jamaica last week, is selling for a dollar a dozen.

This has been an unfavorable season for China Asters, but a collection of some 200 varieties on the Henderson trial-grounds in Hackensack last week gave a good opportunity for examining and comparing some of the more distinct groups. Very good flowers are those of the Empress class, which seem to be the same as those described in the French catalogues as Naine étalée. The plants are broad and compact, with large very double flowers, which, although dwarfed by the dry weather, are now two and a half inches in diameter, slightly quilled in the centre and borne on long stems. The white, bright blue and carmine colored varieties are most desirable. A peculiarity of these plants is that they branch out very low. The best class for bedding is the dwarf Chrysanthemum-flowered, which includes all colors. The tall Chrysanthemum-flowered varieties are later and usually show a yellow centre, which is objectionable. They are very large and graceful. The class known as Ball or Jewel are most of them admirable, and they bear a great number of flowers, which are densely double like those of an incurved Chrysanthemum. They come in various colors. The Pompon Crown, or Cockade, is a desirable class of low-growing, but large-flowered plants with large, tightly compact flowers in pink, indigo, light blue and crimson, with the quilled centre-florets white. The Kugel, or Isabel Aster, is Anemone-flowered, with an outer band of imbricated blush-white petals and the centre of dark wine-color; they are novel and distinct. The dwarf Pæony-flowered class are of excellent habit, but since they are a more recent development they have fewer distinct colors than the large Pæony-flowered ones. Many of these colors are brilliant, but some of them are an objectionable muddy red. They have long stems, which make them valuable for cutting. Out of the forty varieties of the Victoria class, a really distinct dozen could be picked out of good clear shades. We noted a dark scarlet, a light blue, an indigo, a carmine with no magenta in it, a copper-red, a pure white, a heliotrope, a crimson, a dark crimson margined with white, and a striped purple, which were admirable. Of the Comet class, the flowers of which have something of the wayward and unconventional form of the Japanese Chrysanthemum, all are good. One, an apple-blossom pink, is especially delicate in color, while Vilmorin's Giant White, with its long stems and abundant flowers, is as near perfection as has yet been reached by any of these flowers.